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CDW as a possible reason for the pseudogap in the normal state of high-Tc cuprates

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Abstract

Two possible reasons for an instability with wave vector Q=(π, π) near the half-filling have been studied. The superexchange coupling of copper spins yields d-wave symmetry of the pseudogap. Nevertheless, the calculated critical temperature, T*, in this case is almost two times smaller than that observed experimentally in the bilayered cuprates. The phonon-mediated interaction (CDW scenario) provides the correct order of magnitude of T*. As the symmetries of the pseudogaps differ in both cases, T* does not increase when we switch them on simultaneously. © 1997 Plenum Publishing Corporation.

Keywords

Charge density waves, Pseudogap, Superexchange interaction